

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. Contract ID Code Cost-Plus-Fixed-Fee		Page 1 Of 12	
2. Amendment/Modification No.  P00007		3. Effective Date  2007MAY31		4. Requisition/Purchase Req No.  SEE SCHEDULE		5. Project No. (If applicable)	
6. Issued By U.S. ARMY TACOM LCMC AMSTA-AQ-ABGA SHERRI HENDERSON (586)574-8880 WARREN, MICHIGAN 48397-5000 HTTP://CONTRACTING.TACOM.ARMY.MIL WEAPON SYSTEM: WPN SYS: 00 EMAIL: SHERRI.HENDERSON@US.ARMY.MIL		Code W56HZV		7. Administered By (If other than Item 6) DCMA MARYLAND 217 EAST RED WOOD ST SUITE 1800 BALTIMORE, MD 21202-5299		Code S2101A	
				SCD C PAS NONE ADP PT HQ0338			
8. Name And Address Of Contractor (No., Street, City, County, State and Zip Code)  PATRICK POWER PRODUCTS, INC. 6655-P AMBERTON DRIVE BALTIMORE, MD 21075-6202  TYPE BUSINESS: Other Small Business Performing in U.S.				<input type="checkbox"/>		9A. Amendment Of Solicitation No.	
						9B. Dated (See Item 11)	
				<input checked="" type="checkbox"/>		10A. Modification Of Contract/Order No. DAAE07-03-C-L107	
						10B. Dated (See Item 13) 2003SEP18	
Code 1MAJ2		Facility Code					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing items 8 and 15, and returning _____ copies of the amendments: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. <b>FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.</b> If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. Accounting And Appropriation Data (If required) ACRN: AD NET INCREASE: \$502,715.00							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATIONS OF CONTRACTS/ORDERS</b>							
KIND MOD CODE: A It Modifies The Contract/Order No. As Described In Item 14.							
<input checked="" type="checkbox"/>		A. This Change Order is Issued Pursuant To: Mutual Agreement The Contract/Order No. In Item 10A. The Changes Set Forth In Item 14 Are Made In					
<input type="checkbox"/>		B. The Above Numbered Contract/Order Is Modified To Reflect The Administrative Changes (such as changes in paying office, appropriation data, etc.) Set Forth In Item 14, Pursuant To The Authority of FAR 43.103(b).					
<input type="checkbox"/>		C. This Supplemental Agreement Is Entered Into Pursuant To Authority Of:					
<input type="checkbox"/>		D. Other (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return _____ copies to the Issuing Office.							
14. Description Of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
SEE SECOND PAGE FOR DESCRIPTION							

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. Name And Title Of Signer (Type or print)		16A. Name And Title Of Contracting Officer (Type or print) ROSALIE WILLIAMSON ROSALIE.A.WILLIAMSON@US.ARMY.MIL (586)574-8089	
15B. Contractor/Offeror  _____ (Signature of person authorized to sign)	15C. Date Signed	16B. United States Of America  By _____ /SIGNED/ (Signature of Contracting Officer)	16C. Date Signed  2007JUN05

NSN 7540-01-152-8070

PREVIOUS EDITIONS UNUSABLE

30-105-02

STANDARD FORM 30 (REV. 10-83)

Prescribed by GSA FAR (48 CFR) 53.243

<b>CONTINUATION SHEET</b>	<b>Reference No. of Document Being Continued</b> <b>PIIN/SIIN</b> DAAE07-03-C-L107 <b>MOD/AMD</b> P00007	<b>Page</b> 2 <b>of</b> 12
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SECTION A - SUPPLEMENTAL INFORMATION

PREVIOUS CONTRACT AMOUNT: \$4,112,890  
AMOUNT THIS ACTION : 502,715  
CURRENT CONTRACT AMOUNT : \$4,615,605

Modification P00007 to DAAE07-03-C-L107,

1. The purpose of this bilateral modification is to revise the scope of work, add funding and extend the period of performance. The additional scope is added pursuant to the changes clause, FAR 52.243-2, Changes-Cost Reimbursement.
2. The following changes are made to the contract:
  - a. Section B, CLIN 0007 and SubCLIN 0007AA are added to fund the additional scope.
  - b. Section C, Scope of Work:
    - (1) Paragraph C.3.4 was renumbered to C.3.5.
    - (2) Paragraphs C.2.2.10; C.2.2.10.1 thru C.2.2.10.4; C.2.2.11; C.2.3.6; C.3.4; C.4.1.3 and C.4.1.4, are added.
  - c. Section F, Deliveries or Performance:
    - (1) F.1.1, the COR is changed from John Tasdemir to Kevin Mills, as indicated in the mailing address.
    - (2) F.2, is changed from 44 months to 53 months and the contract end date is changed from 31 May 2007 to 28 February 2008.
  - d. Section G, Contract Administration Data:
    - (1) FAR clause 52.242-4016 "Communications", the COR is changed from John Tasdemir to Kevin Mills.
    - (2) Section G is revised to include the increased funding on Line item 0007AA, ACRN AD, in the amount of \$502,715.
  - e. Section H, Special Contract Requirements: Added paragraph H.2 GOVERNMENT FURNISHED EQUIPMENT (GFE). The government will furnish the Auxiliary Power Unit (APU) as delivered in C.4.1.1, back to the contractor, as GFE.
  - f. CDRL, DD 1423, Data Items A001, A002, and A003, all references to the COR are changed from John Tasdemir to Kevin Mills.
3. In consideration of the modification agreed to, this is a complete and final equitable adjustment to the contract for the Contractors performance in support of changes contained in this modification and their proposal for adjustment. The Contractor releases the Government from any and all liability under this contract for any further equitable adjustment attributable to this modification.
4. As a result of this modification, the total contract amount is increased by \$502,715 consisting of an estimated cost of \$464,187 and a fee of \$38,528.
5. All other terms and conditions remain the same.

\*\*\* END OF NARRATIVE A0008 \*\*\*

Name of Offeror or Contractor: PATRICK POWER PRODUCTS, INC.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS				
0007	<div>SERVICES LINE ITEM</div> <div>SECURITY CLASS: Unclassified</div> <div>Estimated cost of this action \$ 464,187 Fixed fee \$ 38,528 Total cost plus fixed fee \$ 502,715</div> <div>(End of narrative B001)</div>				\$ ** NSP **
0007AA	<div>RESEARCH AND DEVELOPMENT SERVICES</div> <div>NOUN: FY07 PATRICK POWER MOD. PRON: R372C228R3 PRON AMD: 01 ACRN: AD AMS CD: 622601H7700</div> <div>The contractor shall perform the work described in section C of the contract; specifically, C.2.2.10; C.2.2.10.1 thru C.2.2.10.4; C.2.2.11; C.3.4; C.4.1.3 and C.4.1.4.</div> <div>(End of narrative B001)</div> <div>Inspection and Acceptance INSPECTION: Destination ACCEPTANCE: Destination</div> <div>Deliveries or Performance DLVR SCH PERFORM COMPLETION DATE REL CD QUANTITY DATE 001 0 28-FEB-2008</div> <div>\$ 502,715.00</div>				\$ 502,715.00

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SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 SCOPE:

The Contractor, acting as an independent contractor and not as an agent of the government, shall provide all necessary labor, materials, supplies, facilities, equipment and engineering/technical services to design, develop, test, and deliver a rotary engine multi-fuel auxiliary power unit (RMF-APU) to the U.S. Army Tank-automotive and Armaments Command. Using its existing design as a starting baseline, the Contractor shall evaluate system enhancements and apply them as appropriate. The resulting configuration shall be demonstrated, tested and evaluated. The results shall be reported to the Government and the hardware shall be delivered to the Government in the "as tested" configuration.

C.2 REQUIREMENTS: The Contractor shall perform the following:

C.2.1 Baseline characterization:

The Contractor shall perform an initial test of the pre-existing, unmodified, rotary multi-fuel, auxiliary power unit (RMF-APU) system at 1/4, 1/2, 3/4 and full power operating conditions. Each condition shall be demonstrated for at least five hours at ambient conditions near standard temperature and pressure with commercially available, diesel fuel number 2 (DF-2). The results of this initial test shall be referred to as the baseline condition. Measurements taken in this baseline test shall at a minimum include fuel and air consumption, oil consumption, exhaust smoke opacity, intake and exhaust system temperature and pressure, engine speed, and APU power output.

C.2.1.2 Baseline configuration demonstrated performance characteristics;

The contractor has shown through testing that the current RMF-APU delivers 11.2 kw of engine output power with a fuel consumption of 0.6 lb/BHP-hr while operating on DF-2. The combined weight of the engine, engine assembly, and alternator is currently less than 90 pounds and the volume of the engine and alternator assembly is 1.5 ft. Follow-on work beyond the current effort will build on these baseline performance characteristics and target the system enhancements targets given in section C.2.2, system enhancements.

C.2.2 System enhancements:

The contractor shall enhance the program by developing a system suitable for installation into an armored vehicle; the targeted installation design is the Abrams main battle tank. The heavy fuel rotary engine, alternator, radiator, muffler, and air filter shall fit within the under-armored Auxiliary Power Unit (APU) space claim of the Abrams main battle tank. The prime mover for this power-generating system shall be the single rotor 294 CC displacement engine. Its power level shall be enhanced to provide 10 kW of electrical power out at 28 vdc using jet propulsion fuel number 8 (JP-8) & DF-2, with respect to the baseline engine described in C.2.1 and C.2.1.2 by application of technology previously developed.

C.2.2.1 Air induction:

The subject engine shall benefit from the air induction enhancements. Specifically, the intercooler and associated elements shall be evaluated with respect to the installed requirements, and added to the system if appropriate.

C.2.2.2 Fuel injection:

The fuel injection equipment and strategy employed shall be incorporated into the subject engine. This shall specifically include:

Improved electronic control unit, Woodward model IP-2  
Modified injector location  
Improved injector type

C.2.2.3 Combustion Pre-chamber:

The changes made to the pre-chamber shall be incorporated into the single rotor engine: This improved configuration involves:

Change to glow plug resistance specification.  
Addition of temperature sensing element to the pre-chamber  
Optimization of injector location  
Optimization of lower chamber geometry

C.2.2.4 Alternator:

The alternator shall incorporate a variable speed voltage control. The control methodology was demonstrated with a 10 kW

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capacity alternator.

C.2.2.5 Engine system cooling:

The contractor shall configure the engine cooling systems, to handle any additional heat associated with the increased power levels. Rotor cooling air and the liquid cooled rotor housings will be reviewed, tested, and modified as necessary to balance the additional heat load dissipation.

C.2.2.6 Engine exhaust system:

The Contractor will configure the exhaust and muffler systems to minimize the static backpressure and utilize any dynamic tuning characteristics that may be beneficial. The system must also control noise and minimize the weight of the components.

C.2.2.7 Engine lubrication system:

The Contractor shall configure the lubricating oil system to assure that the metered quantity is the minimum required for proper operation of the engine and to meet the mission profile. This re-design may include the method and location of oil delivery as well as delivery rate.

C.2.2.8 Other Enhancements:

Other areas of system improvement which may become possible or apparent during the program may be considered for inclusion in the program. System modifications outside of the items listed above must be presented to the Government for approval and incorporation into the contract by modification.

C.2.2.9 Packaging:

The engine alternator shall be packaged as an APU to fit within the M1A2 Abrams main battle tank. The contractor shall configure it to fit within the Abrams APU space in the left rear sponson of the tank. Development of this item shall include the following primary efforts:

- Development of a physical support structure for all elements of the system
- Development of the vehicle interface
- Development of the systems integration for all elements
- Integration of the engine/alternator subsystem
- Integration of the air induction subsystem
- Integration of the engine exhaust subsystem
- Integration of the engine cooling and lubrication subsystem
- Maximum weight not to exceed 180 lbs

C.2.2.10 Stryker Repackaging:

The engine alternator developed under this contract for the M1A2 SEP, shall be repackaged to fit in the Stryker APU space claim in the right nose compartment of the vehicle. The repackaged APU shall attempt to maximize commonality between the two packages when ever possible.

C.2.2.10.1 Stryker Vehicle / NPS Interface

The contractor, with input from the COR, shall define all required areas of system(s) interface including electrical, airflows, coolant(s), fuel, mounting, accessibility, maintainability and controls. Input from the COR will be provided as Government Furnished Information (GFI).

C.2.2.10.2 Alternator Cooling

The contractor shall define best methods of cooling for the alternator. The evaluation is to include air cooling, liquid (coolant) cooling, or other methods. The alternator cooling method used must interface properly with the APU engine and the vehicle to provide adequate cooling under all defined conditions. The contractor shall conduct a trade off analysis to determine the best cooling approach for the APU with commonality with the Abrams unit being a major criterion.

C.2.2.10.3 System Cooling

The contractor shall determine the best methods for redesigning the cooling system of the RMF-APU engine for the unique requirements of the Stryker APU space claim. Analysis shall include using a self contained cooling system (similar to the RMF-APU), integrating the APU into the Stryker engine coolant loop and other cooling technologies. In the event that the Stryker vehicle cooling system is to be used, define the modifications required to the vehicle cooling system to facilitate the APUs

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integration.

C.2.2.10.4 Intercooler

The contractor shall evaluate the need for an APU intercooler based on power requirements, installation limits and Stryker operating environment. The contractor will design and include, as necessary, the intercooler into the APU assembly.

C.2.2.11 Abrams Commonized Design

The contractor shall redesign the Abrams APU to maximize commonality between the Stryker and Abrams designs. Suggested design changes from the unit delivered in task in C.4.1.2 shall be presented to the COR and shall focus on any design trade-offs expected for the sake of commonality. The design changes and trade-off analysis shall be presented at a technical review meeting described in C.3.4 for COR concurrence.

C.2.3 Demonstration and evaluation:

The final RMF-APU design that includes all required enhancements shall be demonstrated and evaluated to assess overall performance. The following measurements shall be taken during the demonstrations: air and fuel consumption, oil consumption, exhaust smoke opacity, combustion chamber(s) pressure and injection timing(s), intake system pressure and temperature, rotor coolant air temperature and flow rate (if necessary), engine speed, and APU power output. All demonstrations shall be performed using a Mil-Spec oil.

C.2.3.1 Diesel fuel demonstration:

The final RMF-APU design shall be demonstrated using DF-2 as fuel. The evaluation shall include demonstration at 1/4, 1/2, 3/4, and full power at both near standard temperature and pressure (STP), and at an ambient temperature of 120 F. Partial power shall be demonstrated for five (5) hours per operating point. Peak power shall be demonstrated for thirty (30) hours.

C.2.3.2 JP-8 demonstration:

The final RMF-APU design shall be demonstrated using JP-8 as fuel. The evaluation shall include demonstration at 1/2 and full power at both near standard temperature and pressure (STP), and at an ambient temperature of 120 F. Partial power shall be demonstrated for five (5) hours per operating point. Peak power shall be demonstrated for thirty (30) hours.

C.2.3.3 High temperature qualification

The APU shall demonstrate full electrical power capability at ambient air temperatures of 120 F using JP-8 & DF-2. Testing shall take place at seal level pressure altitude. Test duration shall be determined as the time required to achieve steady state temperatures plus 1 hour.

C.2.3.4 Electrical Integration Qualification

The APU electrical power buss shall be demonstrated to provide power at a level as required by the host vehicle providing 10 kW electric out at 28 vdc using JP-8 & DF-2. Electrical connection to the vehicle shall be via a terminal block mounted on the APU.

C.2.3.5 Noise Attenuation Demonstration

The installed APU shall demonstrate operation while maintaining sound pressure level below 85 dBa, measured from the working APU (located in the left rear sponson) at 3 meters at a height of 1.25 meters.

C.2.3.6 Stryker Demonstration

The repackaged Stryker APU as described in C.2.2.10 shall be demonstrated using JP-8 fuel to Strykers requirements as outlined in the Common Non-primary Power Specification (CNPS) specification at the contractors facility. The contractor will design and implement the facilities and conditions to include simulation, as appropriate, of available airflow, vehicle cooling system interface, electrical (bus) conditions, etc.

C.2.4 Teardown and analysis:

After completion of the diesel fuel and JP-8 demonstrations, the engine shall be torn down for inspection and any accelerated wear shall be documented. The unit will be reassembled for delivery as provided for in section C.4.1.

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C.3 MEETINGS:

The Contractor shall attend and support meetings as follows:

- C.3.1 Start of work: Within 30 days after contract award the Contractor shall attend a meeting at RDECOM/TACOM to discuss timelines, materials, technical approaches, and any other pertinent issues.
- C.3.2 Progress Review: Upon completion of the System Enhancement tasks set forth in section C.2.2 and at least 60 days prior to the contract completion date, the Contractor shall host a meeting at its own site to discuss results to date, trade-off analyses, and down-select decisions required prior to the demonstration phase.
- C.3.3 Demonstration of results: At the commencement of, or during, the diesel fuel and JP-8 demonstrations, Government personnel may visit the Contractor's facility to view the final RMF-APU design, review the system enhancements, view the RMF-APU in operation, and observe the test equipment and conditions.
- C.3.4 Commonality Technical Review: After the commonality analysis has been completed for both the Stryker and Abrams space claims, the contractor shall present the results/recommendations at TARDEC/TACOM within three (3) months of the date of award, for concurrence by the COR. The results of this meeting shall determine the design to build to, for the hardware deliverable task C.4.1.4.
- C.3.5 Presentation of results: After the demonstration of results, the Contractor shall visit RDECOM/TACOM to present the final results of the entire project.

C.4 DELIVERABLES:

The Contractor shall deliver the following hardware, reports, and displays. The Contracting Officer's Technical Representative (COTR) shall be responsible for accepting or rejecting the contract deliverables.

C.4.1 Hardware:

- C.4.1.1 The Contractor shall deliver a 10kW demonstration unit (electrical power output) within 4 months of receipt of order. This demonstration unit will include a representative (conforms to goals stated in section C.2.3) engine, generator, fuel system (injectors, pump, lines, etc) and control unit(s) mounted in a frame and required air filtration, exhaust, power output terminals and cooling systems. The unit shall not include a fuel tank or batteries and shall be shipped with operating instructions (See F.1.6).
- C.4.1.2 The contractor shall deliver a fully functional RMF-APU to the Government, in the configuration demonstrated in section C.2.3.
- C.4.1.3 The contractor shall deliver the repackaged APU for the Stryker space claim to the government in the configuration demonstrated in section C.2.3.6.
- C.4.1.4 The contractor shall deliver, to the Government, a fully functional APU, fit to the M1A2 Abrams main battle tank under armor space claim, in the configuration agreed upon by the contractor and the COR at the conclusion of the commonality review meeting described in C.3.4. The Government will furnish to the contractor, as GFE, the APU delivered under section C.4.1.1. to use in the fabrication of the new APU.

C.4.2 Reporting:

C.4.2.1 Quarterly reports:

The Contractor shall deliver quarterly Contractor Progress, Status, and Management reports. The first report shall be due 90 days after contract award. (Reference Exhibit A, Contract Data Requirements List, data item A001).

C.4.2.2 Final report:

The Contractor shall prepare and deliver to the Government a draft Science and Technical Report no later than 30 days prior to the contract completion date. The report shall include cost analysis, a summary of technical information gathered or created, test data and conclusions. The government shall review and provide comments within two weeks. The Contractor shall submit the final report within two weeks of receipt of the government comments. (Reference Exhibit A, Contract Data Requirements List, data item A002).

C.4.3 Presentation materials:

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The Contractor shall prepare and deliver presentation materials in accordance with Exhibit A, Contract Data Requirements List A003. The presentation materials shall be delivered at the same time as the draft Scientific and Technical report. These presentation materials may be publicly displayed at government locations, or at professional or industry trade shows or conferences. The materials shall consist of portable three-panel display boards, approximately 72W X 30H in size.

\*\*\* END OF NARRATIVE C0001 \*\*\*

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SECTION F - DELIVERIES OR PERFORMANCE

F.1 Deliverables:

F.1.1 All deliverables requiring submission in a physical medium, if any, must be shipped FOB destination to the following address:

USA RDECOM  
Attn: Mr. Kevin Mills  
AMSTA-TR-R, MS121, Bldg 212  
6501 E. 11 Mile Road  
Warren, MI 48397-5000

F.1.2 The following shall be delivered in accordance with the Contract Data Requirements List, (CDRL) DD 1423, Exhibit A to this contract:

F.1.2.1 Data item A001: Contractor Progress, Status and Management Report. The first report shall be due three months after award. Subsequent reports shall be sent quarterly. Reference section C.4.1.

F.1.2.2 Data item A002: Scientific and Technical Report (Final). The final Scientific and Technical Report shall be due by the contract end date (changed on Mod P00003). A draft of this report shall be due 30 days prior to the contract end date. Reference section C.4.2.

F.1.2.3 Data item A003: Presentation Material. The Contractor shall submit a presentation display board. Reference section section C.4.3. The display board shall be due at the same time as the draft Scientific and Technical Report.

F.1.3 The Contractor shall submit two reports in accordance with the clause "Patents - Reporting Of Subject Inventions" as follows:

F.1.3.1 An interim Report of Inventions and Subcontracts (form DD-882) shall be submitted twelve months after contract award.

F.1.3.2 A final Report of Inventions and Subcontracts(form DD-882) shall be submitted within three months of the contract end date.

F.1.4 In accordance with section I clause "Reports of Government Property" the contractor shall submit annual reports of government property (form (DD 1662).

F.1.5 The Contractor shall deliver a complete, working rotary engine auxiliary power unit, in accordance with section C.4.1 and CLIN 0002. This unit shall become the property of the Government. The unit shall be shipped in accordance with section F.1.1. The unit shall be delivered no later than the contract end date.

F.1.6 The contractor shall deliver a 10kW demonstration unit (electrical power output) in accordance with section C.4.1.1 and CLIN 0006.

F.2 Period of Performance: The total period of performance for this contract is fifty-three (53) months and the contract end date is 28 February 2008.

\*\*\* END OF NARRATIVE F0001 \*\*\*

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SECTION G - CONTRACT ADMINISTRATION DATA

LINE	PRON/ AMS CD/ <u>ITEM</u> <u>MIPR</u>	<u>ACRN</u>	OBLG STAT/ <u>JOB ORD NO</u>	<u>PRIOR AMOUNT</u>	INCREASE/DECREASE <u>AMOUNT</u>	CUMULATIVE <u>AMOUNT</u>
0007AA	R372C228R3	AD	1	\$ 0.00	\$ 502,715.00	\$ 502,715.00
	622601H7700		72C228			
				NET CHANGE	\$ 502,715.00	

SERVICE <u>NAME</u>	NET CHANGE <u>BY ACRN</u>	<u>ACCOUNTING CLASSIFICATION</u>	<u>ACCOUNTING STATION</u>	INCREASE/DECREASE <u>AMOUNT</u>
Army	AD	21 72040000076N6N7EP622601255Y S20113	W56HZV	\$ 502,715.00
				NET CHANGE \$ 502,715.00

	<u>PRIOR AMOUNT OF AWARD</u>	<u>INCREASE/DECREASE AMOUNT</u>	<u>CUMULATIVE OBLIG AMT</u>
NET CHANGE FOR AWARD:	\$ 4,112,890.00	\$ 502,715.00	\$ 4,615,605.00

<u>ACRN</u>	<u>EDI ACCOUNTING CLASSIFICATION</u>		
AD	21 070820400000 S20113 76N6N7E622601H7700255Y	72C228S20113 W56HZV	
		<u>Status</u> <u>Regulatory Cite</u> _____	<u>Title</u> _____
			<u>Date</u> _____
		G-1 CHANGED 52.242-4016      COMMUNICATIONS	MAY/2000

(a) Communications on technical matters pertaining to the contract shall be direct between the contractor and the Technical Representative. Communications for the Technical Representative shall be addressed to:

Name: Kevin Mills  
e-mail: kevin.r.mills@us.army.mil

(b) The Administrative Contracting Officer's (ACO) name and email address are also provided if known at this time:

ACO: David Mason  
e-mail: david.mason@dcma.mil

(c) Please see the appointment letters prepared at time of contract award for functions the Technical Representative and ACO will perform on this contract.

[End of Clause]

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Name of Offeror or Contractor: PATRICK POWER PRODUCTS, INC.

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1. Sale and Delivery of Baseline Technology Engine: (This section added on mod P00001)

H.1.1 The Contractor shall transfer to the Government a quantity of one (1) each of its existing rotary technology engines.

H.1.1.1 The engine shall be transferred to the Government at a firm fixed price of \$131,043 (reference CLIN 0004). The engine shall become the property of the Government.

H.1.1.2 The engine shall be retained at the Contractor's site. It shall be used by the Contractor in the performance of the scope of work in section C of this contract.

H.1.1.3 The engine shall be incorporated into the APU to be delivered under CLIN 0002.

H.1.2 Because of its firm-fixed price nature, the following clauses pertain only to CLIN 0004:

Section E:  
52.246-2 Inspection of Supplies - Fixed Price  
52-246-16 Responsibility For Supplies

Section I:  
52.232-1 Payments

H.1.3 All parts of the contract other than CLIN 0004 are on a cost-plus fixed fee basis.

H.2 GOVERNMENT FURNISHED EQUIPMENT (GFE). The government will furnish the Auxiliary Power Unit (APU) as delivered in C.4.1.1, back to the contractor, as GFE.

\*\*\* END OF NARRATIVE H0001 \*\*\*

CONTINUATION SHEET	Reference No. of Document Being Continued		Page 12 of 12
	PIIN/SIIN DAAE07-03-C-L107	MOD/AMD P00007	
Name of Offeror or Contractor: PATRICK POWER PRODUCTS, INC.			

SECTION J - LIST OF ATTACHMENTS

<u>List of</u> <u>Addenda</u>	<u>Title</u>	<u>Date</u>	<u>Number</u> <u>of Pages</u>	<u>Transmitted By</u>
Exhibit A	CONTRACT DATA REQUIREMENTS LIST	30-MAY-2007	003	EMAIL

CONTRACT DATA REPORTING LIST (DD Form 1423)

Form Approval OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for retrieving instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract No. listed in Block E.

A. CONTRACT LINE ITEM NO.: 0003  
B. EXHIBIT.....: A  
C. CATEGORY.....: SBIR Plus  
D. SYSTEM/ITEM.....:  
E. CONTRACT NO.....: DAAE07-03-C-L107  
F. CONTRACTOR.....: PATRICK POWER PRODUCTS, INC.

1. DATA ITEM NO.....: A001  
2. TITLE OF DATA ITEM....: Contractor's Progress, Status, and Management Report  
3. SUBTITLE.....: N/A

4. AUTHORITY.....: DI-MGMT-80227(T)

5. CONTRACT REFERENCES....: Scope of Work (SOW), Section C.4.2.1

6. REQUIRING OFFICE.....: AMSTA-TR-R 9. DIST. STATEMENT REQUIRED:

12. DATE OF FIRST SUB:  
See Block 16

7. DD250 REQ.....: LT / YES

10. FREQUENCY: See Block 16

13. DATE OF SUBS. SUB:

8. APP CODE.....:

11. AS OF DATE:

See Block 16

14. DISTRIBUTION A. ADDRESSES B. COPIES: DRAFT FINAL

Mr. Kevin Mills, Contracting Officer's Representative (COR), E-mail:kevin.r.mills@us.army.mil

1

Mr. Sherri Henderson, Contract Specialist, E-mail:henderss@taacom.army.mil

1

Cognizant Administrative Contracting Officer, E-mail: TBD

1

15. TOTAL: 1 \*

\* In distributing the electronic report, according to the schedule in Block 16 below, the Contractor shall deliver one (1) copy to the Government, sent to the individuals as designated above and the cognizant ACO e-mail addresses.

16. REMARKS:

a. The Contractor shall deliver a report every month, starting 30 days from the date of contract award, in accordance with (IAW) Data Item Description (DID) DI-MGMT-80227(T) (Contractor's Progress, Status and Management Report).

b. Complete the reports in accordance with (IAW) Data Item Description (DID) DI-MGMT-80227(T), "Contractor's Progress, Status, and Management Report." The COR is responsible for accepting or rejecting the "Contractor's Progress, Status, and Management Reports." See DID DI-MGMT-80227, at the internet address below, for instructions on completing the required report.

Tailoring note: Delete paragraph 10.3 (g, k & l) from DID DI-MISC-80227

<http://astimage.daps.dla.mil/docimages/0001\48\17\DI80227.PD8>

c. Prepare the reports in the Contractor's format. Submit the reports using any of the following electronic formats:

(1) Files readable using these Microsoft\* 97 Office Products (TACOM can currently read OFFICE 97\* and lower): Word, Excel, PowerPoint, or Access. Spreadsheets must be sent in a file format that includes all formulae, macro and format information. Print image is not acceptable. Executable files, other than self-extracting compressed files, are unacceptable.

(2) Files in Adobe PDF (Portable Document Format). Scanners should be set to 200 dots per inch.

(3) Files in HTML (Hypertext Markup Language). HTML documents must not contain active links to live Internet sites or pages. All linked information must be contained within your electronic report, and be accessible offline.

(4) Other electronic formats. Before preparing your report in any other electronic format, please

e-mail the COR, with an e-mail copy-furnished to amsta-idq@tacom.army.mil, to obtain a decision as to the format's acceptability. This e-mail must be received by the COR not later than ten calendar days before the draft report's due date. All alternate methods must be at no cost to the Government.

- NOTES:
- (a) The above formats may be submitted in compressed form using self-extracting files.
  - (b) Files may be read-only, password protected.

d. Acceptable media: The Contractor shall submit reports via e-mail. If e-mail is not workable, other acceptable media include 100 or 250 Megabyte Zip\*-disk, 3 1/2 inch disk, or 650 megabyte CD ROM. Identify the software application and version used to create each file submitted.

(1) E-MAIL. Maximum size of each e-mail message shall be three and one-half (3.5) megabytes. Any compressed files must be self-extracting, and you must provide appropriate instructions. You may use multiple e-mail messages if necessary, however, you must annotate the subject lines in this manner: "Message 1 of 3, 2 of 3, 3 of 3."

(2) 100 or 250 MEGABYTE ZIP\*-DISK, 3 1/2 INCH DISK, OR 650 MEGABYTE CD ROM via U.S. Mail or other carrier. The Contractor shall label all submitted disks with the Contract number, the Contractor's name and address, and a contact's phone number.

NOTE: Please select only one medium by which to transmit each report. For instance, do not submit a report via e-mail and 100 megabyte Zip\*-disk.

\* Registered Trademark

17. PRICE GROUP:

18. ESTIMATED TOTAL PRICE:

- |  |                              |  |
|--|------------------------------|--|
| 1. DATA ITEM NO.....: A002                                       |                              |  |
| 2. TITLE OF DATA ITEM....: Scientific and Technical Report       |                              |  |
| 3. SUBTITLE.....: Final Technical Report                         |                              |  |
| 4. AUTHORITY.....: DI-MISC-80711A (T)                            |                              |  |
| 5. CONTRACT REFERENCES....: Scope of Work (SOW), section C.4.2.2 |                              |  |
| 6. REQUIRING OFFICE.....: AMSTA-TR-R                             | 9. DIST. STATEMENT REQUIRED: | 12. DATE OF FIRST SUB:<br>See Block 16 |
| 7. DD250 REQ.....: DD  | 10. FREQUENCY: See Block 16  | 13. DATE OF SUBS. SUB:<br>See Block 16 |
| 8. APP CODE.....:  | 11. AS OF DATE:              |  |

14. DISTRIBUTION	A. ADDRESSES	B. COPIES:	DRAFT	FINAL
Mr. Kevin Mills, Contracting Officer's Representative (COR), E-mail: kevin.r.mills@us.army.mil			1	1
Mr. Sherri Henderson, Contract Specialist, E-mail:henderss@tacom.army.mil				1
Cognizant Administrative Contracting Officer, E-mail: TBD				1
15. TOTAL:			1	1 *

\* In distributing the electronic report, according to the schedule in Block 16 below, the Contractor shall deliver one (1) copy to the Government, sent to the individuals as designated above and the cognizant ACO e-mail addresses.

16. REMARKS:

a. The Contractor shall deliver one (1) draft "Final Technical Report," 30 days prior to contract completion. Besides the data required by DI-MISC-80711A (T), the draft report shall include all test data, total production estimate and project cost savings related to the effort findings, charts, and drawings resulting from this contract. The draft report shall also include a completed Standard Form (SF) 298 (Report Documentation Page) as the report's cover sheet. The COR will review the draft report and return it to the Contractor within fifteen (15) days of receipt with comments. The Contractor shall submit one (1) final "Final Technical Report" within fifteen (15) days after receipt of draft comments.

b. Complete the reports IAW DID DI-MISC-80711(A), "Technical Report - Study/Services." The COR is responsible for accepting or

rejecting the draft and final reports, and for submitting the approved final report to the Defense Technical Information Center (DTIC), in Ft. Belvoir, VA. See the data item description (DI-MISC-80711A), at the internet address below, for instructions on completing the required report.

Tailoring Note: Delete paragraph 10.2 from DID DI-MISC-80711A.

<http://assist.daps.dla.mil/docimages/0002/27/88/80711A.PD4>

You may download the SF 298 from the following internet address:

<http://www.dtic.mil/dtic/forms/sf298template.doc>

You may download basic instructions for completing the SF 298 form, from the following internet address:

[http://www.dtic.mil/dtic/forms/SF298\\_MS67.doc](http://www.dtic.mil/dtic/forms/SF298_MS67.doc)

Here are some additional instructions for completing the SF 298 form, that apply when submitting reports under the SBIR Program:

For each unclassified report, the Contractor shall fill in Block 12a (Distribution/Availability Statement) of the SF 298 with one of the following statements:

- (a) Approved for public release; distribution unlimited
- (b) Distribution authorized to U.S. Government Agencies only; contains proprietary information

Note: After reviewing the Contractor's entry in Block 12a, TACOM has final responsibility for assigning a distribution statement.

Block 13 (Abstract) of the SF 298 must include the first sentence, "Report developed under SBIR contract for topic A02-233." The abstract must identify the purpose of the work and briefly describe the work carried out, the finding or results, and the potential applications of the effort. Since the Department of Defense (DOD) will be publishing the abstract, it must not contain any proprietary or classified data.

Block 14 (Subject Terms) of the SF 298 must include the term "SBIR Report."

d. Prepare the reports in the Contractor's format. Submit the reports using any of the following electronic formats:

(1) Files readable using these Microsoft\* 97 Office Products (TACOM can currently read OFFICE 97\* and lower): Word, Excel, PowerPoint, or Access. Spreadsheets must be sent in a file format that includes all formulae, macro and format information. Print image is not acceptable. Executable files, other than self-extracting compressed files, are unacceptable.

(2) Files in Adobe PDF (Portable Document Format). Scanners should be set to 200 dots per inch.

(3) Files in HTML (Hypertext Markup Language). HTML documents must not contain active links to live Internet sites or pages. All linked information must be contained within your electronic report, and be accessible offline.

(4) Other electronic formats. Before preparing your report in any other electronic format, please e-mail the COR, with an e-mail copy-furnished to [amsta-idq@tacom.army.mil](mailto:amsta-idq@tacom.army.mil), to obtain a decision as to the format's acceptability. This e-mail must be received by the COR not later than ten calendar days before the draft report's due date. All alternate methods must be at no cost to the Government.

NOTES: (a) The above formats may be submitted in compressed form using self-extracting files.

(b) Files may be read-only, password protected.

e. Acceptable media: The Contractor shall submit reports via e-mail. If e-mail is not workable, other acceptable media include 100 or 250 Megabyte Zip\*-disk, 3 1/2 inch disk, or 650 megabyte CD ROM. Identify the software application and version used to create each file submitted.

(1) E-MAIL. Maximum size of each e-mail message shall be three and one-half (3.5) megabytes. Any

compressed files must be self-extracting, and you must provide appropriate instructions. You may use multiple e-mail messages if necessary, however, you must annotate the subject lines in this manner: "Message 1 of 3, 2 of 3, 3 of 3."

(2) 100 or 250 MEGABYTE ZIP\*-DISK, 3 1/2 INCH DISK, OR 650 MEGABYTE CD ROM via U.S. Mail or other carrier. The Contractor shall label all submitted disks with the Contract number, the Contractor's name and address, and a contact's phone number.

NOTE: Please select only one medium by which to transmit each report. For instance, do not submit a report via e-mail and 100 megabyte Zip\*-disk.

\* Registered Trademark

17. PRICE GROUP:

18. ESTIMATED TOTAL PRICE:

1. DATA ITEM NO. ....: A003  
2. TITLE OF DATA ITEM.: Presentation Materials  
3. SUBTITLE .....: N/A  
4. AUTHORITY .....: DI-ADMN-81373  
5. CONTRACT REFERENCE: C.4.2.3  
6. REQUIRING OFFICE...: AMSRD-TAR-R 9. DIST. STATEMENT REQUIRED.: 12. DATE OF FIRST SUB.: 30 DAC  
7. DD250 REQ.....: LT / YES 10. FREQUENCY.....: See Block 16 13. DATE OF SUBS. SUB.: See Block 16  
8. APP CODE.....: 11. AS OF DATE.....: See Block 16

14. DISTRIBUTION	A. ADDRESSES	B. COPIES:	DRAFT	FINAL
Mr. Kevin Mills, Contracting Officer's Representative (COR), E-mail: kevin.r.mills@us.army.mil			1	1
Mr. Sherri Henderson, Contract Specialist, E-mail: henderss@tacom.army.mil				1
Cognizant Administrative Contracting Officer, E-mail: TBD				1
15. TOTAL:			1	1 *

\* In distributing the electronic report, according to the schedule in Block 16 below, the Contractor shall deliver one (1) copy to the Government, sent to the individuals as designated above and the cognizant ACO e-mail addresses.

16. REMARKS:

- a. Contractor shall prepare a portable 3 panel display board, approximately 72Wx30Hin size.
- Left panel to include: Purpose, Problem and Procedure.
  - Center panel to include: Title, Illustrations/Photos and/or Graphics/Charts.
  - Right panel to include: Results and Conclusions.
  - Contractor to deliver 1 such display boards. It shall be due upon delivery of the draft Scientific and Technical Report.

17. PRICE GROUP:

18. ESTIMATED TOTAL PRICE: